

New Genera Species and Records of Orthoptera from the Three Kings Islands New Zealand

By J. T. SALMON, D.Sc., F.R.E.S., Entomologist,
Dominion Museum.

The material that forms the subject of this paper was collected by Mr. E. G. Turbott on Great Island, of the Three Kings Group, during May, 1946; and I am indebted to Dr. Gilbert Archey, Director of the Auckland Museum, for the opportunity to study the collection, which included Blattidae, Phasmidae, Tettigoniidae, and Stenopelmatidae.

FAMILY BLATTIDAE.

Two species of cockroaches were included in the collection; the native *Platygasteria undulivitta* Walker taken under stones, and the cosmopolitan *Supella supellectilium* Serville, which was beaten off kanuka, *Leptospermum ericoides*. This is the first published record of *S. supellectilium* occurring in New Zealand.

FAMILY PHASMIDAE.

TRIBE CLITUMNINI.

Genus *ACANTHOXYLA* Uvarov, 1944.

One of the principal diagnostic characters of the Genus *Acanthoxyla* Uvarov is the presence of a well-developed spine on the base of the ovipositor, and, although this spine is only partly developed, possibly rudimentary, on the Three Kings specimens, their general characters indicate that they fall into this genus.

***Acanthoxyla senta* n. sp.** Pl. 56, figs. 1-4; Pl. 57, figs. 1-3.

Colour.—Female: Both specimens are a rich chocolate-brown on the body and legs with the posterior intersegmental margins marked by orange-ochreous transverse bands; a black mid-dorsal spot on the posterior segmental margin of each segment; head and prothorax with faint whitish lines dorsally, and a narrow faint whitish or ochreous mid-dorsal longitudinal line extends from the head almost to the posterior border of the metathorax; antennae ochreous-brown with the segments tipped with black; eyes orange; bases of fore femora yellowish-ochreous. Legs banded on the femora and tibia with pale whitish or ochreous, irregular cloudy bands; claws and arolia brown.

Male: Both specimens are entirely a bright grass-green, with the posterior intersegmental margins marked by yellowish-ochreous transverse bands surmounted by a mid-dorsal black spot; faint yellowish lines dorsally on the head and prothorax; a narrow pale-ochreous to yellow

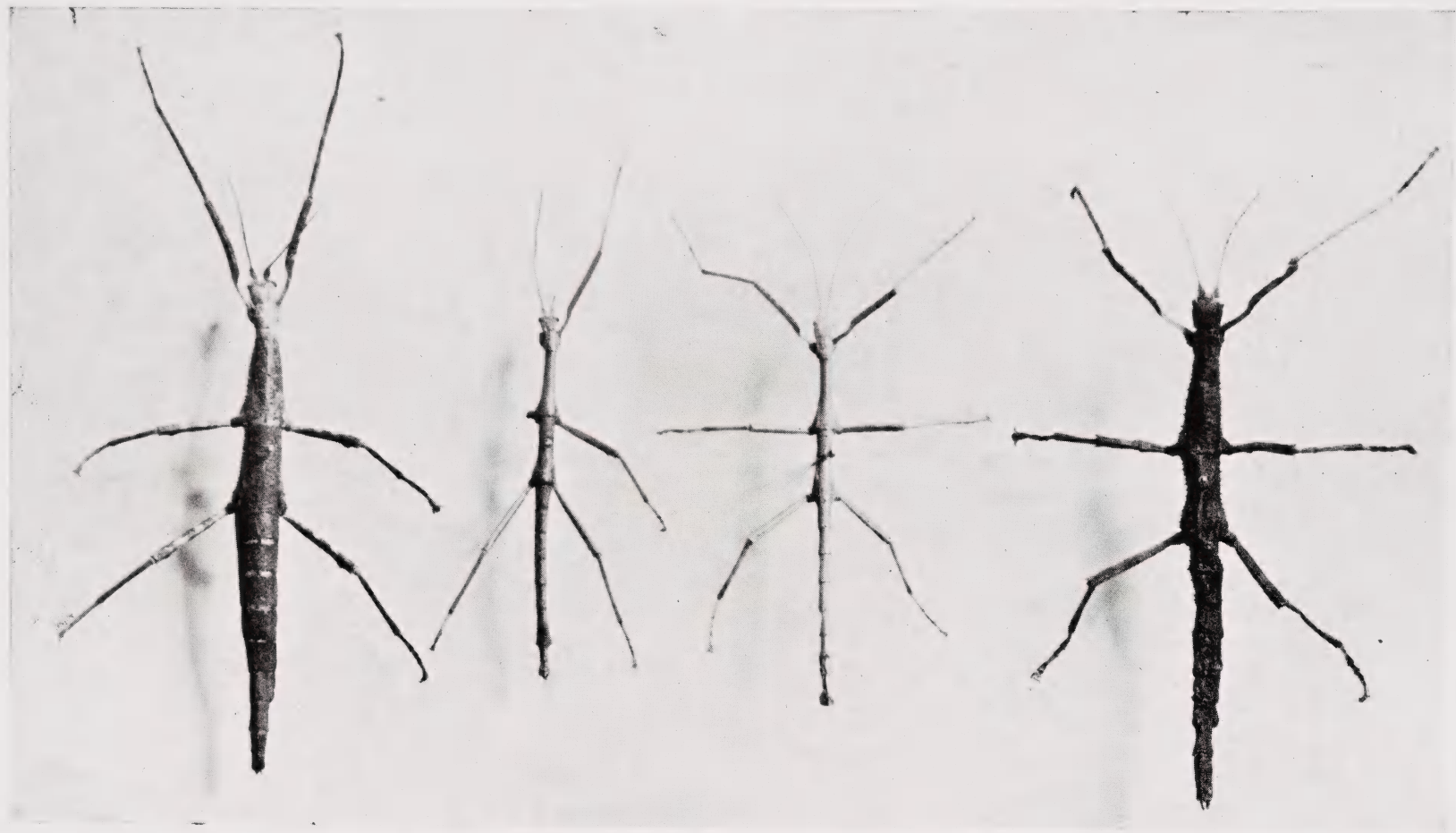
band extends down each side from the anterior border of the mesothorax to the posterior border of the metathorax; antennae ochreous-brown with the segments each black-tipped, eyes reddish, claws and arolia ochreous to orange.

Body.—Female: Length, up to 7.5 cms. Head broader than, and a little longer than, prothorax; mesothorax and metathorax subequal; Abd. I slightly shorter than Abd. II; Abds. IV, V, and VI distinctly longer than the rest; Abd. VI with a distinct lateral foliaceous lobe to each side posteriorly; Abd. VII constricted anteriorly but swelling posteriorly; Abd. IX approximately as wide as long; cuticle of the entire body bearing many minute dorsal and lateral tubercles which are larger on the head and prothorax; mesothorax, metathorax, Abds. I, II, and III all bearing, as well, both dorsally and laterally, very many small sharp spines; on the mesothorax and metathorax some of these form a lateral line down each side; some of the tubercles of the head may be extended as small spines and the spines of the first three abdominal segments may be reduced to tubercles; ventrally, the body with occasional tubercles on the thorax and anterior abdominal segments; median suture present, indicated by a dorsal inverted "V"-shaped translucent line of the cuticle at about two-thirds back on the metathorax. Occasional short bristles occur over the entire body.

Male: Length, up to 5.6 cms. Very much narrower and more parallel-sided than the female. The segmental proportions as in the female but with Abd. VII considerably widened posteriorly and very much shorter than Abd. VI; Abd. IX also considerably expanded posteriorly and carinate dorsally. Cuticle practically smooth except for some dorsal minute granulations on the mesothorax and a few tubercles on the head and prothorax; body smooth ventrally; a suggestion of a mid-dorsal carina on the thoracic segments; median suture present indicated by a dorsal recurved translucent line of the cuticle at about three-quarters back on the metathorax; cerci club-like, and clothed with short black bristles. Abd. IX bearing numerous short bristles. Occasional short bristles occur over the entire body.

Antennae: First segments, in both male and female, foliaceous, with stout central rib; second segments also foliaceous, but not so markedly so; less than half as long as the first segments and narrower; third segments narrower still but longer than the second; fourth much shorter than third; fifth to terminal elongate and more or less equal. Total number of segments in female, 23-24, in male 22-23. The antennae in both sexes clothed with many very minute hairs.

Legs.: Both male and female with the femora and tibiae of all three legs each bearing two carinae dorsally, and three ventrally, all of which are very finely serrated; the central one of the three ventral carinae, on the middle and hind femora, each with three small blunt teeth; the two outer ventral carinae, of the middle and hind legs, each with a very large, prominent, sharp, downwardly-directed tooth near the distal end; the fore femora unarmed; each leg segment, at its distal end, armed dorsally with a pair of small teeth, one to each side; first tarsal segment twice as long as second; the tibiae and tarsi clothed with minute hairs.



Acanthoxyla senta n. sp. 1, female, type; 2, male, type; 3, male, paratype; 4, female, paratype.

Photo, J. T. Salmon.

Genitalia.—Female: Ovipositor with the first or ventral valvulae completely enclosing the second and third valvulae, markedly carinate ventrally and angular basally, with a small blunt swelling on the carina at the basal angle; rounded posteriorly and extending to, or just beyond, the posterior border of Abd. IX. Cerci flattened, foliaceous, about two-thirds as long as Abd. IX and clothed with many short setae.

Male: Abd. IX, which is considerably expanded dorso-laterally, is also thickened along each latero-ventral edge and supplied along the thickening with a number of short stiff setae. The posterior border is lightly indented and runs inwards ventrally as two ridges, one to each side, each of which passes into a very stout inwardly-directed black spine. Harpagones moderately widely separated, curved, thickened, and club-like, and clothed with many short stiff setae. Thallobase large and tapering into a moderately long aedeagus which bears a number of slender setae around its apex. Accessory organs arising from Abd. VII.

Types: Male and female co-types in the Auckland Museum; male and female paratypes in the Dominion Museum, Wellington.

The co-types were mounted fresh by Mr. Turbott, and although they have lost some of their legs are really the better specimens as they show accurately the proportional lengths of the body segments. The paratypes were mounted after they had been preserved in alcohol and, although they are more complete as regards their appendages, shrinkage caused by the alcohol has masked the true proportional lengths of several of the segments.

The co-types were taken together on *Litsaea*; the paratypes were taken in copula on *Paratrophis*. The securing of these two male specimens is particularly interesting, as they represent the first male specimens of the genus *Acanthoxyla* to be captured. The mainland species of *Acanthoxyla* appear to reproduce pathogenetically and males, if produced at all, must be extremely rare.

FAMILY TETTIGONIIDAE.

The only representative of this family in the collection was one specimen of *Xiphidium semivittatum* Walker, which was taken by beating *Leptospermum ericoides*.

FAMILY STENOPELMATIDAE.

SUB-FAMILY DOLICHOPODINAE.

TRIBE CEUTHOPHILLINI.

Genus **TURBOTTOPECTRON** nov.

Type: *Turbottoplectron unicolor* n. sp.

Medium-sized stout insects with the head inclined underneath the body. Fore femora with one apical spine only on inner margin, middle femora with two apical spines, hind femora with one very small apical spine only on inner margin. Fore and middle tibia each with a pair of apical inferior spines and a pair of smaller lateral spines one to each side; hind tibia with two pairs of apical inferior spines of which the

upper pair is the longer, and two pairs of superior apical spines of which the lower pair is very much longer than any of the other apical spines. Fore and middle tibiae with occasional spines along both dorsal and ventral surfaces, hind tibiae smooth ventrally but with many short stout spines dorsally. First tarsal segment equal in length to the lengths of the remaining three combined. Subgenital plate of male broad basally, tapering abruptly to rounded apex, sparsely clothed with short hairs and grooved below.

This new genus is closest related to *Gymnoplectron* Hutton, from which it is really distinguished by having only one small apical spine on the hind femora.

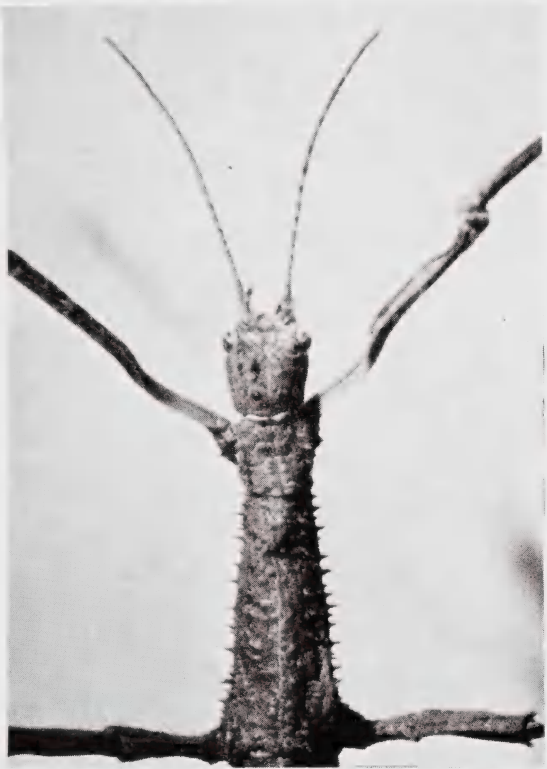
Turbottoplectron unicolor n. sp. Pl. 58, fig. 3; Pl. 59, fig. 1.

Colour: A uniform dark chestnut-brown on the body and appendages; base of hind femora with a number of transverse ocheous stripes.

Body: Length, up to 2.5 cms.; stoutest on mesothorax. Head smooth; vertex evenly rounded; fastigium rising abruptly, pyramidal and deeply sulcate; terminal segment of maxillary palpi distinctly longer than the sub-terminal. Eyes prominent. Thorax smooth, anterior border of pronotum extending slightly over occiput, its inferior margin horizontal, sharply curved anteriorly but more gently curved posteriorly; anterior margin of the pronotum and inferior margins of the pronotum and mesonotum markedly thickened, those of the metanotum not so; the inferior margins of the meso- and metanotum strongly and evenly curved and extending below that of the pronotum. Pronotum equal in length to the combined lengths of the mesonotum and metanotum. Sternum narrow. Abdomen smooth except for posterior margins of segments III to posterior, each of which is armed with a few fine hairs. Cerci long and tapering, clothed with many short bristles and numerous very long slender hairs.

Antennae: Very long, closely approximated at their bases but not touching; first segment large and stout but longer than broad, second segment much narrower and about one-quarter length of first; third segment tapering, about two and a-half times length of second; fourth segment about equal to second in length; remaining segments much shorter, subequal; the first and second segments thickly clothed with short, stiff setae, only sparsely clothed along the central portion; towards apex antennae have become heavily clothed with fine hairs which are approximately as long as the diameter of the segments; total number of segments variable from 186-200; occasional segments towards apex appear to be fused and segments in distal portion are difficult to make out.

Legs: Fore coxae only, each with a large sharp spine on the forward edge. All the femora deeply grooved below, and spined, rounded above and evenly clothed with short adpressed setae; fore femora with five spines on inner ventral keel, the proximal spine very small, distal one largest; middle femora with four spines on anterior ventral keel and



Acanthoxyla senta n. sp. 1, Head and anterior portion of thorax, showing spines and tubercles. 2, Terminal abdominal segments of male from side. 3, Terminal abdominal segments of male from below.

Photo, J. T. Salmon.

three spines on posterior ventral keel, proximal ones small, distal ones largest; hind femora with ten spines on inner ventral keel and thirteen spines on outer ventral keel, of which the proximal three are very small. Fore tibiae rounded above and below and armed with three pairs of moderately long ventral spines in addition to the apical ones, thickly clothed with fine hairs; middle tibia also rounded above and below clothed with fine hairs, armed ventrally with three pairs of moderately long spines in addition to the apical ones, and along both the inner and outer lateral margins a proximal and a distal spine; hind tibiae carinate dorso-laterally, with a shallow dorsal groove between the carinae rounded ventrally, clothed with fine hairs; except for the apical spines there are no ventral spines, but dorsally in addition to the two apical pairs of spines the inner carina bears 32-33 spines, the outer carina 34 spines; in both cases the proximal spines are extremely small, but the spines increase in size towards the distal extremity of the tibia. Tarsi all strongly carinate below and clothed with fine hairs which are longer than those on the other leg segments; the large apical spines of the hind tibiae also are clothed with fine hairs.

Locality: Great Island, Three Kings Group, on kanuka.

Type: Male, in Auckland Museum, paratype male in Dominion Museum. Female unknown.

TRIBE RHAPHIDOPHORINI.

Genus **PARANEONETUS** nov.

Type: *Paraneonetus multispinus* n. sp.

Small, stout insects with the head held almost vertical. Fore and middle femora both with a pair of long apical spines, hind femora with only one very small apical spine on inner margin. Fore and middle tibiae both with a pair of apical ventral spines and a pair of shorter lateral apical spines, one to each side; hind tibiae with two pairs of apical ventral spines of which the upper are the longer, and two pairs of apical dorsal spines of which the upper are the shorter, the other pair being very long, over half the length of the first tarsal segment; all tibiae with numerous spines additional to the apical spines. First tarsal segment of fore tarsus much longer than the remaining segments combined; first tarsal segment of middle and hind tarsi twice the length of the second segment and approximately equal in length to the remainder of the tarsus in each case; first and second segments of the hind tarsi only, each with a pair of strong apical dorsal spines. Subgenital plate of male rugose, broad, apically truncate, with conspicuous elevated, transverse, curved, sub-apical, ventral ridge and thickened lateral margins towards apex; subgenital plate of female short, triangular, deeply notched at apex so as to form two lobes, each of which is heavily clothed with short hairs. This genus probably is nearest related to *Neonetus* Brunner, coming between it and *Weta* Chopard but differing from both in the apical spination of the tibiae and the form of the subgenital plate in both the male and the female.

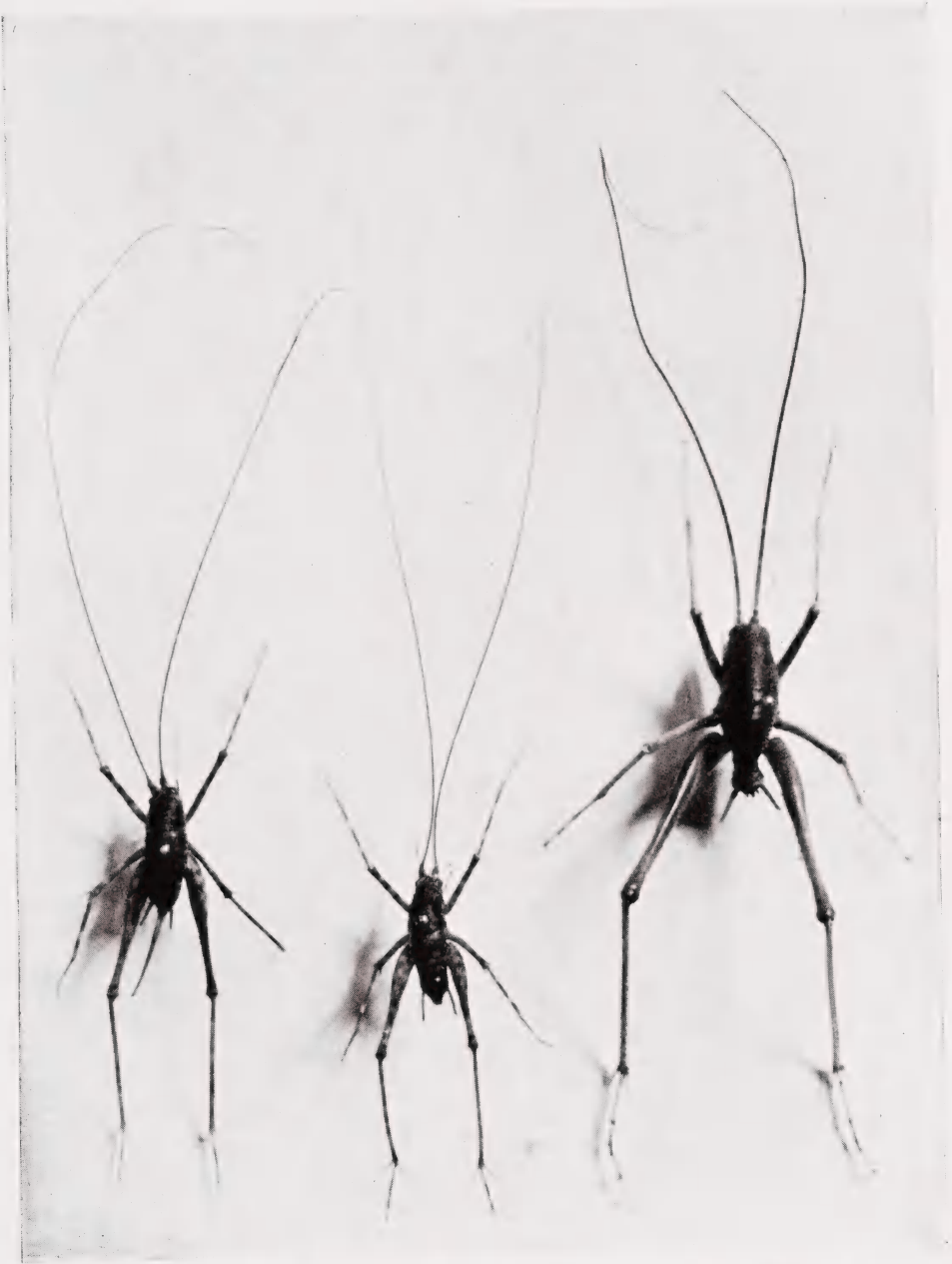
Paraneonetus multispinus n. sp. Pl. 58, figs. 1, 2; Pl. 59, fig. 2.

Colour: Chestnut-brown overlaid by patches of dark-brown or black on the sides of the thorax and Abd. I, patches on other abdominal segments form two dorsal and two dorso-lateral longitudinal stripes; head ochreous brown with two dorsal longitudinal black stripes leading to fastigium and two similar stripes leading to eyes; maxillary palpi light ochreous, darkening basally; antennae dark-brown with 9-11 light ochreous bands spaced at intervals along the entire length; fore and middle femora and tibiae and hind tibiae ochreous with broad bands of dark-brown; hind femora darker ochreous brown irregularly marked dorsally and laterally with dark-brown; tarsi ochreous, first segment of the hind tarsus with a broad apical band of dark-brown.

Body: Length, up to 1.75 cms.; stoutest on mesothorax; cuticle with a delicate velvety texture and clothed evenly but rather sparsely with very short, fine, adpressed hairs. Head mostly naked except towards fastigium, where it is relatively heavily clothed with longer fine hairs, fastigium rising very abruptly, pyramidal, very deeply grooved and clothed with fine hairs; eyes very prominent; terminal segment of maxillary palpi much longer than sub-terminal and considerably swollen apically. Anterior border of pronotum extending forward over occiput, its inferior margin horizontal and gently curving both anteriorly and posteriorly; anterior margin of pronotum and inferior margins of pronotum and mesonotum distinctly thickened, the posterior portion of that of the mesonotum very markedly so; the inferior margins of the mesonotum and metanotum extending down only slightly further than that of pronotum. Length of pronotum almost equal to combined lengths of mesonotum and metanotum; sternum narrow; cerci long and tapering, clothed with both short fine and very much longer fine hairs; ovipositor longer than body.

Antennae: Approximating at their bases but not touching, the first segment dilated and about four times longer than second; second much narrower than first; third narrower still and one and a-half times longer than second on dorsal aspect, but equal on ventral aspect; fourth onwards sub-equal; basal segments sparsely clothed with short fine hairs, the first segment dorsally with many longer dark-brown setae; the density of the clothing increases towards the apex of the antennae but the hairs remain short interspersed occasionally with rather longer isolated ones. Segmentation becomes obscure towards apex but each antennae has approximately 540 segments.

Legs: Fore coxae only, each armed with a long sharp spine on forward edge. Fore and middle femora grooved below, the edges of the grooves rounded, hind femora deeply grooved with the edges strongly carinate; all femora rounded above and heavily clothed with short dark-brown adpressed setae; fore femora bearing eight small spines on the inner ventral edge, the proximal two extremely small, and two spines on the outer ventral edge; middle femora similarly with eight small spines on the anterior ventral edge, none on the posterior edge; hind femora with 23-29 spines on the inner carina, the proximal 2-4 very



Paraneonetus multispinus n. sp. 1, female type. 2, male type.

Turbottoplectron unicolor n. sp. 3, type.

Photo, J. T. Salmon.

small, and 33-34 spines on the outer carina, the proximal four being extremely small; inner edge of each hind femoral carina with a single row of fine, moderately long stiff hairs. Fore and middle tibiae rounded above and below, hind tibia rounded below but broadly grooved and lightly carinate on the edges dorsally; fore tibia with two dorsal rows each of 9-10 small spines situated inside the proximal half, a pair of long ventral spines near the centre and a further smaller pair near the apex in addition to the apical spines; middle tibia similarly bearing two dorsal rows of small spines of which the anterior row contains 4-6 spines and the posterior 9-10 spines and two pairs of ventral spines as in the fore tibia; hind tibia with 38-44 spines on inner dorsal carina and 43-46 on outer carina; no additional ventral spines; tibiae heavily clothed with fine short setae. All tarsi grooved and carinate ventrally, rounded dorsally and clothed with moderately long fine setae; the large apical spines of the hind tibiae also clothed with fine setae.

Locality: Great Island, Three Kings Group, in caves and on kanuka, *Leptospermum ericoides*.

Types: Male and female co-types and paratypes in Auckland Museum. Male and female paratypes in Dominion Museum, Wellington.

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